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## [Brain Injuries are like Snowflakes; Each one Slightly Different](#)

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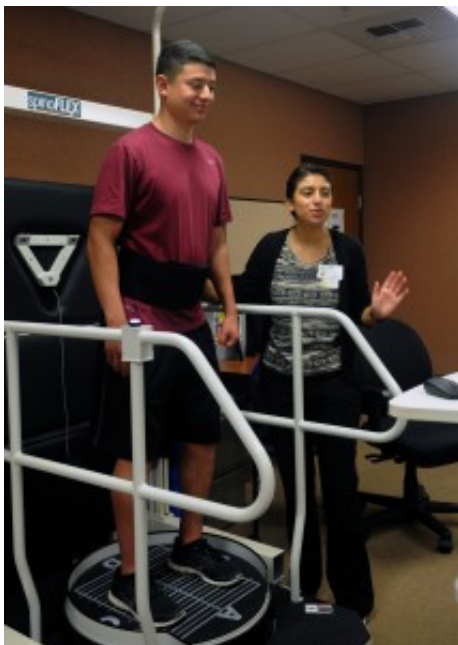
Between the years 2000 and 2015 there were over 320,000 traumatic brain injuries (TBIs) reported within the Department of Defense.

***By Cmdr. Paul Sargent, MC, Naval Hospital Camp Pendleton Concussion Care Clinic Medical Director***

After watching American and Coalition forces being outmaneuvered by low-tech, loosely organized fighters in Iraq and Afghanistan, Gen. Stanley McChrystal presciently observed that “It takes a network to destroy a network.” He developed and promulgated an understanding that good tools and good information are not enough to win the fight, when your target is an ever changing and adaptable interconnected web. My opinion is that Gen. McChrystal would have made a first -rate neuroscientist.

Brain Injury Awareness Month is a great time to remember that the organ in our skulls is not just one lump of tissue, but rather a highly adaptable web of connections, capable of great things, but requiring a great deal of care and maintenance as well.

Between the years 2000 and 2015 there were over 320,000 traumatic brain injuries (TBIs) reported within the Department of Defense. Up to 20 percent of all deployed service members throughout the last 10 years of OIF/ OEF deployments report experiencing at least some sort of TBI (Yurgill 2013). The vast majority of these is mild in nature, and will have no lasting consequences. However up to 15 percent of those concussions may have some ongoing residual effects (DCoE). As a Navy physician, I am concerned that service members with persisting symptoms of brain injury are not functioning in their jobs with peak performance or optimal effectiveness.



Alyssa Diaz, Vestibular Therapy Assistant, NH Camp Pendleton's Concussion Care Clinic, works with Marine Cpl. Edgar Chavez, to improve his balance. Vestibular/ Balance problems are a common symptom after concussion and rehabilitation is a very successful strategy to improve patient functioning. (U.S. Navy photo by Douglas Allen, NHCP Public Affairs)

The United States military is preparing to reduce its size, yet maintain its forward posture and capacity to meet national security goals across the globe. In an age of irregular and cyber warfare, the cognitive demands on warfighters have never been higher. Those who will remain on active duty should have their “mental game” operating at the highest possible level. In order to obtain peak mental performance, service members need to understand how to build and maintain brain health, and also how to access care early when they start to notice psychiatric or neurological problems.

Brain health should be seen as an active process the way physical fitness is. There are many different parts of our brains and they all require regular exercise, good nutrition, and planned times of recovery.

Repetitive and overwhelming stress on a muscle can cause pain and inhibited function, and the same is true of brain circuits. There are many great sources of information about brain health out there, but generally speaking, the same things that are good for a person’s body are also good for their brain. If I could teach service member’s one thing they don’t yet know about brain health, it is this: Keep it active, but also let it heal. The brain needs more rest than most people realize. I see people every day in clinic who knowingly deprive themselves of restful sleep by overusing stimulants, nicotine, caffeine and energy drinks, alcohol, and electronics. The resulting cognitive and emotional problems can be identical to the patients I see who have had multiple concussions.

When people who have had concussions come to see me, I remind them that brain injuries are like snowflakes. Each one is slightly different. Before effective treatment begins, we have to start with a comprehensive assessment. Symptoms can fall in many domains, but the most common are headaches, sleep problems, ocular/ vestibular symptoms, anxiety/ mood symptoms, attention/ cognitive symptoms, and orthopedic/ neck problems. One problem may underlie symptoms in several of these areas. For example, there is some very interesting work being done right now showing that vestibular (balance) rehabilitation can improve people’s mood, headaches, and attention problems. Similarly, improving sleep can help the brain to recover from all the other problems as well. One common challenge in this assessment is trying to determine whether a person’s problems are related more to the concussion (trauma induced brain injury) or PTSD, which can be viewed as a stress induced brain injury. Regardless of the cause, treatment should be targeted at each patient’s individual needs.

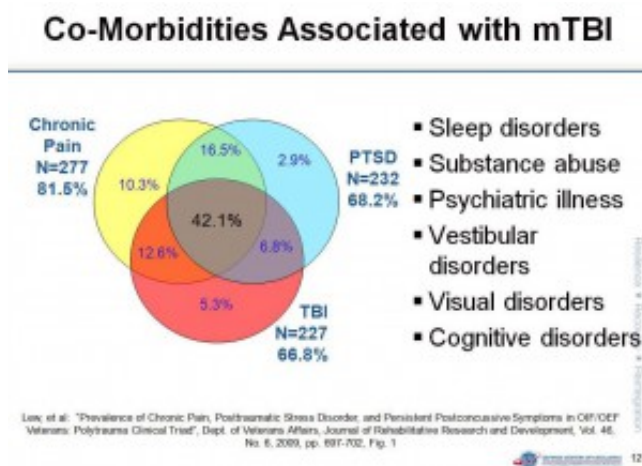


Figure 1. Common Co-morbidities of TBI.  
(From Lew et al 2009)

Given that each area of the “Brain Network” affects all the others, where should we start the healing process? We start by building a network. At the Concussion Care Clinic at Naval Hospital Camp Pendleton we have an interdisciplinary team of experts who are trained to work in each of those specialized areas. Every patient has an opportunity to engage in evaluation and treatment by Neurology, Psychology, Psychiatry, Physical Therapy, Vestibular Therapy, Occupational Therapy, Speech Therapy,

Primary Care, Nursing, Social Work, as well as a variety of Complementary and Alternative Specialists. We strive to continue the work started by the [National Intrepid Center of Excellence](#), who demonstrated that it not only takes a network to destroy a network, it also takes a network to heal one.

Over the next two years we are working to expand our networked capabilities by housing concussion education, treatment, and research all within one state-of-the-art facility on Camp Pendleton. We are eternally grateful to benevolent organizations like the [Intrepid Fallen Heroes Fund](#) whose tireless work on behalf of our service members is foundational to that vision. To date, their work has established a network of Intrepid Spirit Centers which have become the military's most effective strategy for treating the complex needs of our service members with acquired brain injuries ([www.youtube.com/watch?v=OmyuoliqOFM](http://www.youtube.com/watch?v=OmyuoliqOFM)). These facilities are designed from the ground up to provide effectively coordinated care resulting in synergistic benefits for patients and families, as well as commands, military service branches, and our nation as a whole.

Brain Injury Awareness Month 2016 is a time to remember and reflect on where we have been, and also be inspired by where we are going. There is a promising future for the prevention and treatment of brain injuries, and I am confident we are on the cusp of monumental changes. This endeavor will be undertaken by some of the best talents in our nation. We are building the tools and gathering the information to do the work, but most importantly... we are building the network.

For more information visit:

[http://www.defense.gov/News/Special-Reports/0315\\_tbi](http://www.defense.gov/News/Special-Reports/0315_tbi)

<http://www.brainline.org/>

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